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SUBJECT: OECD/NEA: REPORTING CABLE: FIRST MEETING OF
THE EXPERT GROUP ON NEEDS OF RESEARCH AND TEST
FACILITIES IN NUCLEAR SCIENCE, FRANCE, MAY 19, 2005

Summary

U.S. Department of Energy delegate R. Furstenau attended the First Meeting of the Expert Group on Needs of Research and Test Facilities in Nuclear Science. The meeting was held at the Nuclear Energy Agency (NEA) Headquarters in Issy-Les-Moulineaux, France on May 19, 2005. The purpose of this first meeting was to initiate technical discussions and decide on the scope, deliverables and methods of work. END SUMMARY

OPENING REMARKS

1. The meeting was opened by C. Nordborg, head of NEA Nuclear Science Section, who welcomed the participants and indicated that the Expert Group had been established as a follow-up activity to the former Nuclear Science Committee (NSC) activity on "R&D Needs in Nuclear Science". He also informed the Expert Group that a consultant, David Weaver, UK, had been hired to assist the Group in collecting information, and in editing the final report. David Weaver was not able to participate in this Expert Group meeting.

ELECTION OF CHAIR

2. P. D'Hondt, Belgium, was elected chair of the Expert Group

MANDATE OF THE EXPERT GROUP

3. I. Yamagishi, NEA secretariat, introduced the mandate of the Expert Group, as approved by the NSC in June 2004 and confirmed at the NSC bureau meeting in December 2004. The Expert Group would mainly focus on evaluating future needs for research and test facilities in field of nuclear science, reviewing the status of existing facilities worldwide and proposing actions to meet the identified needs. The different functions and roles of the Expert Group members, the consultant and the NEA secretariat were proposed. Possibilities to collaborate with similar activities in other NEA technical committees, especially the Nuclear Development Committee (NDC) and the Committee on the Safety of Nuclear Installations (CSNI), were identified.

4. T. Haapalehto, NEA Nuclear Development Division, asked about the target audience and whether facilities for isotope production and desalination were to be reviewed. P. D'Hondt answered that the final report was mainly aimed at informing capitals about future needs and to identify possibilities for international cooperation. The information to be provided would highlight if facilities are unique and important for research in the field of nuclear science. Nuclear related issues, such as hydrogen production would be brought up when discussing the detailed scope of the study later in the meeting.

5. R. Jacqmin, France, suggested that other existing databases on facilities should be reviewed and that the countries of interest should be defined. K. Suyama, Japan, stated that an accessible database of facilities in NEA member countries, including their status and program, would be very useful for a national government

that plans to initiate new projects in nuclear science.
1R. Furstenau, USA, agreed with K. Suyama and commented that such a database would also be needed in the development of the Generation-IV International Forum (GIF) program. Z. Hzer, Hungary, highlighted the importance of having a good collaboration with CSNI and NDC.

REPORTS ON RELATED CURRENT AND PAST NEA ACTIVITIES

16. Current and past NEA activities related to nuclear facilities were reported as background information to the Expert Group.

17. C. Vitanza, NEA Nuclear Safety Division, presented a related CSNI activity called SFEAR (Support Facilities for Existing and Advanced Reactors). The aim of this activity is to assess facilities needed to support safety for current and advanced reactors. A preceding activity, called SESAR (Senior Group of Experts of Safety Research), was also presented, as well as the status of the Halden project. A final draft of SFEAR report will be submitted to CSNI in December 2005, and published in June 2006. The SFEAR group asked the NSC to contribute to the SFEAR draft, in particular the section on Reactor Physics.

18. P. D'Hondt indicated that the division of responsibilities between the SFEAR project and the NSC Expert Group could be based on the following observations:

- SFEAR reviews facilities for nuclear safety issues;
- SFEAR reviews existing and improved LWRs, as well as existing gas-cooled reactors, but not advanced concepts, such as GIF reactors; and
- SFEAR does not review facilities for measurement of nuclear data.

The method of work for the SFEAR and SESAR projects is based on contributions to the draft report from each member. This method of work would be suitable also for the NSC Expert Group dealing with different issues and various facilities.

19. T. Haapalehto introduced a recent NDC activity entitled "Nuclear Competence Building", which had as an objective to identify mechanisms and policies for promoting international collaboration in the area of nuclear education and R&D. The methodology used in the NDC project was based on a questionnaire to NEA member countries. It was pointed out that it is often difficult to obtain a high return from questionnaires, in particular those, which requires "descriptive", and not "yes/no", answers. After the publication of the final report in 2004, the study of facilities for research is presently not in the NDC program of work.

110. E. Sartori, NEA Data Bank, presented the NSC International Reactor Physics Experiments Evaluation Project (IRPhE) and other integral experiments databases, such as SINBAD on Shielding Experiments, ICSBEP on Criticality, IFPE on Fuel Performance and CCVM on thermal-hydraulic transients. He introduced a list of the status of facilities for reactor physics, nuclear data and criticality, which would constitute a useful input to the report but which would need to be completed. It was noted that the IRPhE project could assist the Expert Group, as its mission is to identify already performed experiments.

111. Expert Group members commented that the International Atomic Energy Agency (IAEA) possesses a database of facilities, which covers various nuclear facilities, but which has not been updated recently. The NEA secretariat was asked to contact N. Ramamoorthy, IAEA, to obtain more information about the database. R. Jacqmin commented that the IAEA database contains official data, which are public and not private. The Expert Group decided to store only official data in the database. G. Benamati, Italy, suggested that, the following facilities should be included in the scope:

- non-nuclear facilities, which do not treat radioactive/nuclear materials, but which are needed in nuclear science
- Russian facilities.

SCOPE, DELIVERABLES AND METHODS OF WORK

112. P. Rullhusen, EC, made a presentation entitled "Nuclear data networking initiatives in the EU". The Michelangelo Network, within the 5th Framework Program,

had reviewed nuclear expertise and research facilities in Europe using a questionnaire. Answers from 280 research organizations were published as a report from the Gesellschaft für Anlagen- und Reaktorsicherheit (GRS), entitled "Assessment of the Situation of Centres of Competence in the Fields of Nuclear Fission and Radiation Protection Final Report". The data collected from European countries are searchable in a database, which could be used as a model for the database to be established by the Expert Group. The NEA secretariat and the consultant were asked to find out more about this activity.

¶13. The Expert Group discussed the written contributions provided by J.Kysela, Czech Republic, H.S. Lee, Korea, and the consultant D. Weaver and re-examined its scope and objectives. In conclusion:
--The aim of the report is to provide scientific evidence enabling government or industrial sectors to secure support and finance from their relevant funding sources for the maintenance of existing and for the development of new facilities.
--Facilities dedicated mainly to fusion research are beyond the scope of the study.
--Facilities for decommissioning and waste disposal are outside of the scope of the study. The nuclear waste treatment, such as reprocessing and P&T is an important issue and would be reviewed in the field of Fuel Cycle Chemistry.

¶14. I. Yamagishi presented a draft proposal for a table of content of the final report on "Needs of research and test facilities in nuclear science" and the associated database. A draft time schedule was also presented. K. Suyama proposed that the Expert Group restrict its study to the following list of facilities (resources), based on the conclusions and recommendations of former NSC study on "R&D needs in nuclear science":
-- Accelerators,
-- Criticality assembly,
-- Hot Laboratories,
-- Material Test Reactors,
-- High performance computing.

¶K. Suyama also proposed to launch a questionnaire to collect the necessary information.

¶15. The Expert Group members discussed the proposed outline of the report and the associated database. The Group concluded that:

¶A. The Expert Group should start by evaluating the research needs and review the availability of facilities described above.

¶B. The Expert Group approved the proposed outline of a final report with the following improvements:

- High performance computing is worthwhile to review but should be a separate section (chapter) of the report, since it covers all fields of nuclear science.
- The IRPhE project should be described as a sub-section entitled "Preservation of Integral Data" together with other integral experiments databases.

¶C. The content of IAEA database should be reviewed and compared with the draft template, as a first approach to establishing a database on facilities. Some items in our template might already have been covered by the IAEA database. After a review by the consultant, the Expert Group would collect and provide missing data.

¶D. Doubts were expressed about the usefulness of launching a questionnaire, as it was not clear which persons to target, nor how many replies could be expected. The Expert Group made no decision on the questionnaire.

¶E. The first outline of a report should be prepared by the consultant, D. Weaver, before the next meeting of the Expert Group. David Weaver would, in the meantime, contact Expert Group members for supplementary information.

¶F. The final draft should be submitted to NSC by December 2006. The report should be published in May 2007.

¶G. P. D'Hondt will provide a short contribution to Reactor Physics section of the SFEAR report by September 2005. The Thermal Hydraulics and Fuel Behaviour sections of the SFEAR report could be used as reference in the NSC report.

¶H. The NEA will establish a dedicated webpage for discussion among Expert Group members. A password

protected webpage for file transfer, as well as mailing list, will be set up.

DATE OF THE NEXT MEETING

16. The next meeting of the Expert Group on "Needs of Research and Test Facilities in Nuclear Science" will be held at the NEA Headquarters in Issy-les-Moulineaux, France on 1-2 December 2005.

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